

VEHICLE ELECTRIC POWER ASSIST STEERING SYSTEM AND  
METHOD USING H-INFINITY CONTROL

Abstract of the Invention

A steering system (10) and method (70) for controlling the steering of a vehicle having a steering assembly including a steering wheel (12), a steering column (14) connected to said steering wheel (12), and an electric motor (20) operatively engaged with the steering assembly for supplying torque assist. A steering angle sensor (32) is employed for sensing an angular position  $\theta_c$  of the steering column (14). The steering system has first and second H-infinity controllers (64A and 64B) coupled in a feedback path (44) for generating first and second feedback signals as a function of the driver torque and first and second characteristics ( $J_c$  and  $K_c$ ) of the steering system. One of the first and second feedback signals is selected and the selected feedback signal is combined with a feedforward signal to generate a motor control signal ( $U$ ) as a function of the estimated torque.